WEST Search History

DATE: Friday, December 20, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L5	L4 same (nucleat$4 or seed)	2	L5
L4	diamondoid same diamond	46	L4
L3	L2 same diamond	66	L3
L2	adamantane	3945	L2
L1	admantane	52	L1

END OF SEARCH HISTORY

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  (FILE 'HOME' ENTERED AT 09:20:31 ON 20 DEC 2002)

     FILE 'CAPLUS' ENTERED AT 09:20:38 ON 20 DEC 2002
L1           74 S ADAMANTANE (1P) DIAMOND
L2            8 S L1 AND (SEED OR NUCLEAT?)

     FILE 'STNGUIDE' ENTERED AT 09:26:50 ON 20 DEC 2002

     FILE 'CAPLUS' ENTERED AT 09:29:06 ON 20 DEC 2002
L3           17 S DIAMONDOID (1P) DIAMOND
L4            0 S L3 AND (SEED OR NUCLEAT?)

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ANSWER 6 OF 8 CAPLUS

AN 1996:119465 CAPLUS
DN 124:216576

TI An investigation of the hydrogenation of aromatic hydrocarbons to yield saturated cycloalkanes: relevance to graphite-diamond transformation

AU Sen, Rahul; Sumathy, R.; Rao, C. N. R.
CS Solid State and Structural Chemistry Unit and Materials Research Centre, Indian Institute of Science, Bangalore, 560 012, India

SO THEOCHEM (1996), 361, 211-16
CODEN: THEODJ; ISSN: 0166-1280
PB Elsevier
DT Journal
LA English

CC 75-7 (Crystallography and Liquid Crystals)

AB Step-wise hydrogenation of benzene, naphthalene and pyrene to yield the corresponding satd. derivs. was examd. at the AM1/RHF level to understand the graphite-**diamond** conversion in a H plasma. Hydrogenation of these aroms. proceeds readily with a negligible activation barrier, suggesting that satn. of a graphite surface by interaction with H atoms probably is very facile. Addn. of CH3.cntdot. and C2H.cntdot. radicals to a partially satd. hydrocarbon yields **adamantane**, which can act as the **nucleation** site for **diamond** growth, a situation that also obtained with partially hydrogenated graphite.

ST arom hydrocarbon hydrogenation graphite diamond transition; **nucleation** diamond graphite hydrogenation arom hydrocarbon

IT Crystal **nucleation**
(of diamond on graphite and relevance of hydrogenation of arom. hydrocarbons to satd. cycloalkanes)

IT 281-23-2P, **Adamantane**
RL: PNU (Preparation, unclassified); PREP (Preparation)
(formation from cyclohexane having 2 Me groups and ethynyl group and relevance to graphite-**diamond** transition)

IT 7782-42-5, Graphite, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(hydrogenation of arom. hydrocarbons to satd. cycloalkanes and relevance to graphite-diamond transformation)

IT 7782-40-3P, Diamond, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(hydrogenation of arom. hydrocarbons to satd. cycloalkanes and relevance to graphite-diamond transformation)

IT 71-43-2, Benzene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation to cyclohexane and relevance to graphite-diamond transition)

IT 91-20-3, Naphthalene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrogenation to decalin and relevance to graphite-diamond transition)

IT 3170-58-9, Cyclohexyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with Me and relevance to graphite-diamond transition)

IT 2229-07-4, Methyl
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with cyclohexyl and relevance to graphite-diamond transitio

L2 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2002 ACS

AN 1994:460597 CAPLUS

DN 121:60597

TI Using zeolites as substrates for diamond thin film deposition

AU Kwan, Michael C.; Gleason, Karen K.

CS Dep. Chem. Eng., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA

SO Materials Research Society Symposium Proceedings (1994), 317(Mechanisms of Thin Film Evolution), 523-8
CODEN: MRSPDH; ISSN: 0272-9172

DT Journal

LA English

CC 49-1 (Industrial Inorganic Chemicals)

AB Zeolites have been used as a potential substrate for CVD **diamond** deposition. By satg. the pore channels of a silicalite crystal, which are spaced approx. 10 .ANG. apart, with hydrocarbon seeds to induce and control **nucleation,** films have been grown in a hot filament chem. vapor deposition (HFCVD) system under std. deposition conditions, using acetone as the carbon source. The hydrocarbons used were **adamantane,** naphthalene, anthracene, 2,3-benzanthracene, and 1,2:5,6-dibenzanthracene. To enhance **nucleation,** a high pressure pre-deposition period was used initially. Characterization of these films through electron diffraction and Auger electron spectroscopy indicates that polycryst. .beta.-SiC imbedded in an amorphous matrix is initially formed and large, well faceted **diamond** crystals are subsequently **nucleated.**

ST zeolites substrate diamond thin film deposition

IT Zeolites, uses
RL: USES (Uses)
(silicalite, substrates, for diamond thin film deposition)

IT 7782-40-3P, Diamond, preparation
RL: PREP (Preparation)
(deposition of thin-film, with zeolites as substrates)

IT 53-70-3, 1,2:5,6-Dibenzanthracene 91-20-3, Naphthalene, uses 92-24-0, 2,3-Benzanthracene 120-12-7, Anthracene, uses 281-23-2, **Adamantane**
RL: USES (Uses)
(in **diamond** thin film deposition on zeolite substrates)

L2 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2002 ACS
AN 1990:129650 CAPLUS
DN 112:129650
TI Formation of diamond films
IN Hotsuta, Hajime; Yamamoto, Sadaaki; Ruisu, Robaato Marukomu
PA Research Development Corp. of Japan, Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C30B029-04
CC 75-1 (Crystallography and Liquid Crystals)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 01103991	A2	19890421	JP 1987-260129	19871015

AB The title method comprises modification of the substrate surface with tricyclo[3.3.1.13,7] decane or its deriv. for control of **nucleation**. An .alpha.-Zr(HPO4)2.H2O single-crystal substrate was immersed in an aq. soln. of 1-tricyclo[3.3.1.1.3,7] decane amine for 24 h for equil. adsorption on the substrate. The substrate was washed and dried. Chem. modification of the substrate surface was confirmed by attenuated total reflection IR absorption spectra, and the diamond film was deposited by evapn. of graphite using a KrF excimer laser beam.
ST **diamond** deposition modified substrate surface; **adamantane** adsorption modified substrate surface
IT 281-23-2, **Adamantane** 768-94-5, Tricyclo[3.3.1.13,7]decan-1-amine 2094-72-6 24886-73-5
RL: PRP (Properties)
(surface modification of substrates by adsorption of, for vapor-phase deposition of **diamond**)
IT 7782-40-3, **Diamond**, uses and miscellaneous
RL: USES (Uses)
(vapor-phase deposition of, on substrate surface modified by adsorption

ANSWER 1 OF 8 CAPLUS COPYRIGHT 2002 ACS

AN 1999:455038 CAPLUS
DN 131:123158
TI Crystal growth of CVD diamond and some of its peculiarities
AU Piekarczyk, W.
CS Institute Physics, Polish Academy Sciences, Warsaw, 02668, Pol.
SO Crystal Research and Technology (1999), 34(5-6), 553-563
CODEN: CRTEDF; ISSN: 0232-1300
PB Wiley-VCH Verlag Berlin GmbH
DT Journal
LA English
CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 69

AB Expts. demonstrate that CVD **diamond** can form in gas environments that are C-undersatd. with respect to **diamond**. This fact is, among others, the most serious violation of principles of chem. thermodn. None of the principles is broken when CVD **diamond** formation is considered not a phys. process consisting in growth of crystals but a chem. process consisting in accretion of macromols. of polycyclic satd. hydrocarbons belonging to the family of org. compds. the smallest representatives of which are **adamantane**, diamantane, triamantane etc. Since the polymantane macromols. are in every respect identical with **diamond** single crystals with H-terminated surfaces, the accretion of polymantane macromols. is a process completely equiv. to the growth of **diamond** crystals. However, the accretion of macromols. must be described in a way different from that used to describe the growth of crystals because some thermodn. functions are defined in manners different for solid phases (i.e. crystals) and for mols. The CVD **diamond** formation is a chem. process proceeding on surfaces of polymantane **seed** macromols. (**diamond seed** crystals) under conditions under which the H-terminated surfaces exist but are chem. unstable. The process consists of several cyclically recurring consecutive reactions that can be thermodynamically coupled. The present approach makes it possible to predict correlations between the growth rate as well as the phase compn. of deposited films and some important process variables. The predicted dependencies are perfectly consistent with exptl. results.

ST diamond CVD crystal growth
IT Vapor deposition process
(chem.; crystal growth of CVD diamond thermodynamically explained as accretion of polymantane macromols.)
IT Crystal growth
Thermodynamics
(crystal growth of CVD diamond thermodynamically explained as accretion of polymantane macromols.)
IT Hydrocarbons, processes
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(polymantanes; crystal growth of CVD diamond thermodynamically explained as accretion of polymantane macromols.)
IT 7782-40-3, Diamond, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(crystal growth of CVD diamond thermodynamically explained as accretion of polymantane macromols.)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

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